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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/754,856	01/04/2001	Andrew J. Hazelton	PA0321-US / 11269.24	3987

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EXAMINER	
JONES, JUDSON	

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 04/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/754,856	HAZELTON ET AL.	
	Examiner	Art Unit	
	Judson H. Jones	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *42 and 43* is/are allowed.

6)☒ Claim(s) *2-4 and 7-41* is/are rejected.

7)☒ Claim(s) *5 and 6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *031504*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Applicant's arguments with respect to claims 1-36 have been considered but are mostly moot in view of the new ground(s) of rejection. One still relevant argument is that Japanese reference '710 is directed to an ebullition cooling system while applicant's invention is for a circulation system. Whiteley 4,605,874 A distinguishes between what he calls evaporative (i.e., ebullient cooling) and "liquid cooling" in column 5 lines 53-57. In column 6 lines 10-15 Whiteley defines liquid cooling as using the thermal capacity of the liquid itself to absorb heat as opposed to using the heat of evaporation of a liquid. Applicant appears to be arguing the same distinction but using the phrases ebullient and circulation system. However in the examiner's opinion, ebullition systems use circulating liquids and therefore are both circulating systems and liquid systems. In some cases, the circulation is passive and in other cases the circulation is active through the uses of pumps, fans or other devices. The distinction between the two systems appears to be that liquid cooling uses the thermal capacity of the liquid to absorb heat as opposed to using the heat of evaporation of a liquid.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 37, 2-4, 7, 10 and 27-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Bissdorf et al. 6,323,469 B1. Bissdorf et al. discloses a tubular shaped conductor 1 as shown in figure 1 (only an embodiment with a solid conductor is shown) and as described in column 2

lines 38-44. The top surface of the conductor is viewed as being the part toward the top of the page and the bottom surface as being the part toward the bottom of the page. A fluid passage is provided between the housing 2 the top, bottom, outer and inner perimeter (for the inner perimeter, the conductor is between the inner perimeter and the housing) with a fluid inlet as described in column 4 lines 61-67.

In regard to claims 2-4 and 27-29, elements 3 are fluid guides and are viewed as being rails. While claims 27-29 are method claims, the limitations of these claims are met by the same references as used in regard to the structure claims.

In regard to claims 5, 6, 42 and 43 and the claim limitation of fluid flowing over the inner perimeter of the conductor, see Bissdorf column 2 lines 38-44.

In regard to claim 7, see element 2 in Bissdorf et al. figure 1.

In regard to claim 10, see Bissdorf column 2 lines 38-44.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 37, 2-4, 7-11 and 27-29 are alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese reference 54044710 A (of record) in view of Bissdorf et al. 6,323,469 B1. The Japanese reference teaches a circulating system where fluid flows through an inlet 10 as shown in figure 1 from a fluid source (a condenser) as described on page 6 lines 24-28 of the English translation and a tubular conductor with a housing, both having a top surface, a bottom surface, an inner perimeter and an outer perimeter. The Japanese reference discloses a fluid passage between at least a portion of the top surface or the bottom surface, a portion of the

inner periphery and a portion of the outer periphery. The Japanese reference does not disclose a circulating system where both the top surface and the bottom surface have a fluid passageway between the surfaces and the housing. Bissdorf et al. teaches in column 3 lines 45-55 positioning a conductor away from a housing wall in order to control the cooling of the conductor. As Bissdorf points out, heating behaves exponentially with the distance of the conductor from the workpiece. Since Bissdorf and Japanese reference '710 are from the same field of endeavor (i.e., cooling of conductors), it would have been obvious at the time the invention was made for one of ordinary skill in the art to have spaced the conductor in a circulation system away from the housing wall in order to better control the cooling of the conductor.

In regard to claims 2-4, 28 and 29, see Japanese reference elements 15 in figure 3.

In regard to claim 7-9, see Japanese reference '710 figure 1.

In regard to claim 10, see the English translation of Japanese reference '710, page 5 lines 7-14.

In regard to claim 11, see Japanese reference '710 page 3 lines 13-21.

Claims 12-26, 31-36 and 38-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trumper 5,294,854 A in view of the Japanese reference and Bissdorf et al. Trumper teaches using E/I core actuators in column 4 line 68 to column 5 line 2 and column 5 lines 39-42 and discloses a first core 22 and a second core 22 in figure 2. Trumper also teaches in column 1 lines 26-36 that heat from conductors interferes with positional accuracy for stage devices. Since Trumper and Japanese reference '710 as modified by Bissdorf et al. are from the same field of endeavor and also since Trumper does not disclose a cooling system for the stage device, it would have been obvious at the time the invention was made for one of ordinary skill in the art

to have utilized the conductor cooling system of Japanese reference '710 in order to improve the performance of the E/I core stage device of Trumper.

In regard to claims 13-16, 23-26, 32, 33, 35 and 36 see Trumper column 10 lines 46-59.

In regard to claims 18-20, see element 15 in the Japanese reference figure 6.

In regard to claim 31, see Trumper column 8 lines 23-31.

In regard to claim 34, see Trumper figure 1A showing an E shaped core with a conductor encircling a portion of the core and see Japanese reference '710 showing a tubular coil with a circulation housing with a fluid inlet and a fluid passageway.

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese reference '710 as modified by Bissdorf et al. in view of Yamaguchi 6,112,531 A. The Japanese reference discloses a method of cooling a tubular shaped conductor but does not disclose any feedback means for controlling the temperature of the device. Yamaguchi teaches feedback of a cooling system in column 7 lines 32-41 by means of temperature sensors in the wall of tubular members enclosing conductors. Since Yamaguchi and the Japanese reference are from the same field of endeavor it would have been obvious at the time the invention was made for one of ordinary skill in the art to have utilized feedback means in the device of the Japanese reference in order to maintain the device at the desired temperature.

Allowable Subject Matter

Claims 42 and 43 are allowed.

Claims 5 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not disclose or teach a circulating system where a first rail and a second rail cooperate to direct the flow of fluid over an outer perimeter, an inner perimeter, a top surface and a bottom surface as recited in claims 5 and 42. Japanese reference '710 discloses a system in figure 3 where guide rails direct fluid over the inner and outer periphery but not the top and bottom surfaces.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Judson H. Jones whose telephone number is 571-272-2025. The examiner can normally be reached on 8-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JHJ 3/30/2004

THANH LAM
PRIMARY EXAMINER